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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/830,009	04/23/2004	Bily Wang	BHT-3244-48	7645

7590 05/26/2006

TROXELL LAW OFFICE PLLC
SUITE 1404
5205 LEESBURG PIKE
FALLS CHURCH, VA 22041

EXAMINER

DONG, DALEI

ART UNIT	PAPER NUMBER
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2879

DATE MAILED: 05/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/830,009

Applicant(s)

WANG ET AL.

Examiner

Dalei Dong

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 and 4-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over European Patent Application 1 447 853 to Meada in view of U.S. Patent No. 6,809,471 to Setlur.

Regarding to claim 1, Meada discloses in Figures 1-3, a white light source, comprising: a substrate (7); a near UV light-emitting diode (1) placing on the substrate; a phosphor mixture (2) coated on the near UV light-emitting diode (1) and composed of a red phosphor (5), a green phosphor (4) and a yellow phosphor (6).

However, Meada does not specifically disclose that the near UV light-emitting diode emits light in the blue color range.

It is old and well known in the art that the color near UV is blue color. Furthermore, Setlur teaches in Figure 4, a light emitting diode having wavelength near UV-to-blue range for the purpose of providing a light-emitting diode having emission in the range of maximum sensitivity to the human eyes.

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilize the near UV to blue emission range diode of

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Setlur for the white light source of Meada in order to provide a light-emitting diode having emission in the range of maximum sensitivity to the human eyes.

Regarding to claim 4, Setlur teaches the yellow phosphor is YAG:Ce or TbAG:Ce (see column 7, lines 20-24), and the motivation to combine is the same as above.

Regarding to claim 5, Meada discloses in Figures 5-7, the white light source is packaged in a surface mount device (the flat display can be surface mounted) is a limitation with respect to the manner in which the claimed apparatus is intended to be employed and this limitation does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations (see MPEP 2114).

Regarding to claim 6, Meada discloses in Figures 5-7, the white light source is packaged in a lamp-type device.

Regarding to claim 7, Meada discloses in Figures 1-3, the substrate (7) is an insulating substrate.

Regarding to claim 8, Setlur teaches the blue light-emitting diode is made of a nitride compound (see column 2, lines 2-5), and the motivation to combine is the same as above.

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Regarding to claim 9, Setlur teaches the blue light-emitting diode emits light with a wavelength of 400-490 nm (see column 3, lines 38-40), and the motivation to combine is the same as above.

Regarding to claim 10, Meada discloses in Figures 1-3, the red phosphor, the green phosphor and the yellow phosphor are mixed in a predetermined ratio.

3. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over European Patent Application 1 447 853 to Meada in view of U.S. Patent No. 6,809,471 to Setlur in further view of U.S. Patent No. 6,680,569 to Mueller-Mach.

Regarding to claim 2, Meada in view of Setlur discloses in Figures 1-3, a white light source, comprising: a substrate (7); a blue light-emitting diode (1) placing on the substrate; a phosphor mixture (2) coated on the near blue light-emitting diode (1) and composed of a red phosphor (5), a green phosphor (4) and a yellow phosphor (6).

However, Meada and Setlur does not disclose the red phosphor is CaS:Eu or SrS:Eu .

Mueller-Mach teaches in Figure 3, a light emitting diode, comprising the red phosphor made from CaS:Eu or SrS:Eu (see column 4, lines 18-27) for the purpose of achieving desirable color balance for a true color rendition.

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilize the red phosphor of Mueller-Mach and the

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blue light emitting diode of Setlur for the white light emitting device of Meada in order to achieve desirable color balance for a true color rendition.

4. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over European Patent Application 1 447 853 to Meada in view of U.S. Patent No. 6,809,471 to Setlur in further view of U.S. Patent No. 7,018,565 to Tian.

Regarding to claim 3, Meada in view of Setlur discloses in Figures 1-3, a white light source, comprising: a substrate (7); a blue light-emitting diode (1) placing on the substrate; a phosphor mixture (2) coated on the near blue light-emitting diode (1) and composed of a red phosphor (5), a green phosphor (4) and a yellow phosphor (6).

However, Meada and Setlur does not disclose the green phosphor is $\text{SrGa}_2\text{S}_4:\text{Eu}$.

Tian teaches that it is old and well known in the art to use the green phosphor $\text{SrGa}_2\text{S}_4:\text{Eu}$ in a light-emitting diode (see column 1, lines 12-14).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilize the old and well know green phosphor of Tian and the blue light emitting diode of Setlur for the white light emitting device of Meada in order to achieve desirable color balance for a true color rendition.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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The following prior art are cited to further show the state of the art of composition of a white light source.

U.S. Patent No. 6,621,211 to Srivastava.

U.S. Patent No. 6,635,363 to Duclos.

U.S. Patent No. 6,747,406 to Bortscheller.

U.S. Patent No. 6,817,735 to Shimizu.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dalei Dong whose telephone number is (571)272-2370. The examiner can normally be reached on 8 A.M. to 5 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar Patel can be reached on (571)272-2457. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

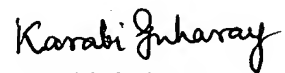
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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



D.D.

May 19, 2006


Karabi Guharay
Primary Examiner
Art Unit 2879